

§ 84.03

placed at a height or not less than 6 meters above the hull.

[79 FR 37921, July 2, 2014, as amended by USCG–2012–0102, 79 FR 68622, Nov. 18, 2014]

§ 84.03 Horizontal positioning and spacing of lights.

(a) Except as specified in paragraph (e) of this section, when two masthead lights are prescribed for a power-driven vessel, the horizontal distance between them must not be less than one quarter of the length of the vessel but need not be more than 50 meters. The forward light must be placed not more than one half of the length of the vessel from the stem.

(b) On a power-driven vessel of 20 meters or more in length the sidelights shall not be placed in front of the forward masthead lights. They shall be placed at or near the side of the vessel.

(c) When the lights prescribed in Rule 27(b)(i) (§ 83.27(b)(i) of this chapter) are placed vertically between the forward masthead light(s) and the after masthead light(s), these all-round lights shall be placed at a horizontal distance of not less than 2 meters from the fore and aft centerline of the vessel in the athwartship direction.

(d) When only one masthead light is prescribed for a power-driven vessel, this light must be exhibited forward of amidships. For a vessel of less than 20 meters in length, the vessel shall exhibit one masthead light as far forward as is practicable.

(e) On power-driven vessels 50 meters but less than 60 meters in length operated on the Western Rivers, and those waters specified in § 89.25 of this chapter, the horizontal distance between masthead lights shall not be less than 10 meters.

§ 84.04 Details of location of direction-indicating lights for fishing vessels, dredgers and vessels engaged in underwater operations.

(a) The light indicating the direction of the outlying gear from a vessel engaged in fishing as prescribed in Rule 26(c)(ii) (§ 83.26(c)(ii) of this chapter) shall be placed at a horizontal distance of not less than 2 meters and not more than 6 meters away from the two all-round red and white lights. This light shall be placed not higher than the all-

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round white light prescribed in Rule 26(c)(i) (§ 83.26(c)(i) of this chapter) and not lower than the sidelights.

(b) The lights and shapes on a vessel engaged in dredging or underwater operations to indicate the obstructed side and/or the side on which it is safe to pass, as prescribed in Rule 27(d)(i) and (ii) (§ 83.27(d)(i) and (ii) of this chapter), shall be placed at the maximum practical horizontal distance, but in no case less than 2 meters, from the lights or shapes prescribed in Rule 27(b)(i) and (ii) (§ 83.27(b)(i) and (ii) of this chapter). In no case shall the upper of these lights or shapes be at a greater height than the lower of the three lights or shapes prescribed in Rule 27(b)(i) and (ii) (§ 83.27(b)(i) and (ii) of this chapter).

§ 84.05 Screens.

(a) The sidelights of vessels of 20 meters or more in length shall be fitted with matt black inboard screens and meet the requirements of § 84.15. On vessels of less than 20 meters in length, the sidelights, if necessary to meet the requirements of § 84.15, shall be fitted with matt black inboard screens. With a combined lantern, using a single vertical filament and a very narrow division between the green and red sections, external screens need not be fitted.

(b) On power-driven vessels less than 12 meters in length constructed after July 31, 1983, the masthead light, or the all-round light described in Rule 23(d) (§ 83.23(d) of this chapter) shall be screened to prevent direct illumination of the vessel forward of the operator's position.

§ 84.06 Shapes.

(a) Shapes shall be black and of the following sizes:

(i) A ball shall have a diameter of not less than 0.6 meter.

(ii) A cone shall have a base diameter of not less than 0.6 meters and a height equal to its diameter.

(iii) A diamond shape shall consist of two cones (as defined in paragraph (a)(ii) of this section) having a common base.

(b) The vertical distance between shapes shall be at least 1.5 meters.

(c) In a vessel of less than 20 meters in length shapes of lesser dimensions

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but commensurate with the size of the vessel may be used and the distance apart may be correspondingly reduced.

§ 84.13 Color specification of lights.

(a) The chromaticity of all navigation lights shall conform to the following standards, which lie within the boundaries of the area of the diagram specified for each color by the International Commission on Illumination (CIE), in the “Colors of Light Signals”, which is incorporated by reference. It is Publication CIE No. 2.2. (TC-1.6), 1975, and is available from the Illumination Engineering Society, 345 East 47th Street, New York, NY 10017 and is available for inspection at the Coast Guard, Shore Infrastructure Logistics Center, Aids to Navigation and Marine Environmental Response Product Line (CG-SILC-ATON/MER), 2703 Martin Luther King, Jr. Ave, Mailstop 7714, Washington, DC 20593-7714. It is also available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html. This incorporation by reference was approved by the Director of the Federal Register.

(b) The boundaries of the area for each color are given by indicating the corner co-ordinates, which are as follows:

(i) *White*:

x 0.525 0.525 0.452 0.310 0.310 0.443
y 0.382 0.440 0.440 0.348 0.283 0.382

(ii) *Green*:

x 0.028 0.009 0.300 0.203
y 0.385 0.723 0.511 0.356

(iii) *Red*:

x 0.680 0.660 0.735 0.721
y 0.320 0.320 0.265 0.259

(iv) *Yellow*:

x 0.612 0.618 0.575 0.575
y 0.382 0.382 0.425 0.406

§ 84.14 Intensity of lights.

(a) The minimum luminous intensity of lights shall be calculated by using the formula:

$$I = 3.43 \times 10^6 \times T \times D^2 \times K^{-D}$$

Where:

I is luminous intensity in candelas under service conditions,

T is threshold factor 2×10^{-7} lux,

D is range of visibility (luminous range) of the light in nautical miles,

K is atmospheric transmissivity. For prescribed lights the value of K shall be 0.8, corresponding to a meteorological visibility of approximately 13 nautical miles.

(b) A selection of figures derived from the formula is given in the following table (Table 84.14(b)):

TABLE 84.14(b)

Range of visibility (luminous range) of light in nautical miles D	Minimum luminous intensity of light in candelas for K = 0.8 I
1	0.9
2	4.3
3	12
4	27
5	52
6	94

§ 84.15 Horizontal sectors.

(a)(i) In the forward direction, sidelights as fitted on the vessel shall show the minimum required intensities. The intensities shall decrease to reach practical cut-off between 1 and 3 degrees outside the prescribed sectors.

(ii) For sternlights and masthead lights and at 22.5 degrees abaft the beam for sidelights, the minimum required intensities shall be maintained over the arc of the horizon up to 5 degrees within the limits of the sectors prescribed in Rule 21 (§83.21 of this chapter). From 5 degrees within the prescribed sectors the intensity may decrease by 50 percent up to the prescribed limits; it shall decrease steadily to reach practical cut-off at not more than 5 degrees outside the prescribed sectors.

(b) All-round lights shall be so located as not to be obscured by masts, topmasts or structures within angular sectors of more than 6 degrees, except anchor lights prescribed in Rule 30 (§83.30 of this chapter), which need not be placed at an impracticable height above the hull, and the all-round white light described in Rule 23(e) (§83.23(e) of this chapter), which may not be obscured at all.

(c) If it is impracticable to comply with paragraph (b) of this section by exhibiting only one all-round light, two all-round lights shall be used suitably